



Sustainability Base's design leverages its local assets to minimize water and energy demands.



Working Assets

Sustainability Base's design leverages its local assets to minimize water and energy demands. Under a grassy oval in the nearby NASA Research Park, 106 interconnected well bores averaging 140 ft (42.7m) deep were dug between February 2009 and July 2010. Water now circulates in a closed-loop system of 6 in. bores with 1" pipes over 15,000 ft (~ 5km) long. These condition the water to a temperature of 58°F (14.5°C), taking advantage of the ground's constant thermal inertia. Thermally conditioned water can be boosted up (warmed) or down (chilled) by heat exchangers. The combined system (geothermal wells, water pumps, and heat exchangers) is up to 70% more energy efficient than traditional methods that heat, cool, and blow air using natural gas and electricity.

Chilled water circulates in ceiling panels and warmed water in wall-mounted radiators. The cooling ceiling panels were particularly complicated to install. The building's two-wing half-moon design, fire suppression sprinkler system, and interior design required 434 panels of 25 different

sizes. The open lobby also receives radiant heating and cooling through foundation piping beneath a 1 in. (2.54 cm) tongue-and-groove oak floor recovered and recycled from the demolished 14-Foot Wind Tunnel. Combining passive and active heating and cooling systems maximizes our positive energy profile.

On the North side an interior horizontal light shelf gives an additional bounce to available daylight for inside lighting. On the East, West, and South exteriors you may notice both horizontal and vertical aluminum grills. These baffle sunlight glare and reduce thermal load in the summer. Additional insulation is contributed by double-paned, argon-filled windows with Solarban™ 70XL glaze and high performance siding. Rooftop air handlers transfer cool outside air during the night to underfloor spaces (plenums) for ventilation throughout the day. Automated upper windows provide additional ventilation and humidity control. The lower windows on each floor can be opened by occupants for fresh air and a cool breeze.



sustainability base

